



K A N S A S

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Examples Explaining Mumps Vaccine Effectiveness: *Or why are so many mumps cases occurring in vaccinated people?*

There have been many questions about why people, who have been vaccinated, are getting mumps. As you read through the examples that follow, keep these key points in mind.

- The mumps vaccine (part of the MMR vaccine) is about 95% effective.
- This means out of every 100 people vaccinated, 95 will be protected. However, the vaccine will not “take” in 5 people, and these people will remain susceptible to the disease.
- By comparison, the measles vaccine (also part of the MMR vaccine) is about 98% effective and the annual influenza vaccine is about 70-85% effective.

Example 1:

In a community of 100 people, 100% have been vaccinated. Everyone is exposed to mumps. What happens?

- 95 people (95%) in the community are protected by the vaccine and do not get mumps.
- 5 people (5%) in the community become ill with mumps because the vaccine did not “take”.
- Of the 5 people who get mumps, all (100%) have been vaccinated.

Example 2:

In a community of 100, 96% have been vaccinated (a similar rate to what is being seen today in Kansas K-12 schools and some colleges.) Thus 96 people are vaccinated and 4 people are not. Everyone is exposed to mumps. What happens?

- 91 people (95% of the 96 who are vaccinated) in the community are protected by the vaccine and do not get mumps.
- 5 people (5% of the 96 who are vaccinated) become ill with mumps because the vaccine did not “take”.
- 3 of the 4 people who have never been vaccinated get ill because they have no immunity to the disease (not everyone who is exposed will become ill with the disease).
- Of the 8 (5 vaccinated +3 unvaccinated) people who get mumps, 63% (5/8 were vaccinated. (This is similar to what is happening now in Kansas.)

Thus a large percent of the people with mumps have been vaccinated. This is expected in a highly vaccinated population when dealing with a vaccine that is 95% effective and a contagious disease like mumps. This does not mean that the vaccine is not working; in fact the mumps vaccine is working as expected.

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